
FILE 'USPAT' ENTERED AT 12:54:18 ON 17 JUL 1998

* W E L C O M E T O T H E *
* U . S . P A T E N T T E X T F I L E *

=> s adenovirus? and gene therapy and protein IX

2894 ADENOVIRUS?
18155 GENE
37863 THERAPY
1230 GENE THERAPY
 (GENE(W)THERAPY)
62658 PROTEIN
66033 IX
243 PROTEIN IX
 (PROTEIN(W)IX)

L1 8 ADENOVIRUS? AND GENE THERAPY AND PROTEIN IX

=> d 11,1-8,cit,ab

1. 5,780,300, Jul. 14, 1998, Manipulation of non-terminally differentiated cells using the notch pathway; Spyridon Artavanis-Tsakonas, et al., 435/377, 325, 366, 372, 375 [IMAGE AVAILABLE]

US PAT NO: 5,780,300 [IMAGE AVAILABLE] L1: 1 of 8

ABSTRACT:

The present invention is directed to methods for the expansion of non-terminally differentiated cells ("precursor cells") using agonists of Notch function, by inhibiting the differentiation of the cells without inhibiting proliferation (mitotic activity) such that an expanded population of non-terminally differentiated cells is obtained. The cells are preferably stem or progenitor cells. These expanded cells can be used in cell replacement therapy to provide desired cell populations and help in the regeneration of diseased and/or injured tissues. The expanded cell populations can also be made recombinant and used for **gene therapy**, or can be used to supply functions associated with a particular precursor cell or its progeny cell.

2. 5,741,772, Apr. 21, 1998, Neurotrophic factor NNT-1; Ming-shi Chang, 514/2; 530/300, 350 [IMAGE AVAILABLE]

US PAT NO: 5,741,772 [IMAGE AVAILABLE] L1: 2 of 8

ABSTRACT:

Disclosed are nucleic acids encoding novel neurotrophic factors, designated NNT-1. Also disclosed are amino acid sequences for NNT-1 polypeptides, methods for preparing NNT-1 polypeptides, and other related aspects.

3. 5,707,618, Jan. 13, 1998, **Adenovirus** vectors for **gene therapy**; Donna Armentano, et al., 424/93.21, 93.2; 435/172.3, 320.1; 514/44 [IMAGE AVAILABLE]

US PAT NO: 5,707,618 [IMAGE AVAILABLE] L1: 3 of 8

ABSTRACT:

The present invention relates to novel **adenovirus** vectors for use in **gene therapy** which are designed to prevent the generation of replication-competent **adenovirus** (RCA) during in vitro propagation and clinical use. The invention also provides methods for the production of the novel virus vectors. These vectors maximize safety for clinical applications in which **adenovirus** vectors are used to transfer genes into recipient cells for **gene therapy**.

4. 5,705,151, Jan. 6, 1998, **Gene therapy** for T cell regulation; Steve W. Dow, et al., 424/93.21, 450; 435/7.2, 69.1, 172.3, 320.1; 514/44; 935/54, 55, 62, 71 [IMAGE AVAILABLE]

US PAT NO: 5,705,151 [IMAGE AVAILABLE]

L1: 4 of 8

ABSTRACT:

The present invention provides a nucleic acid-based therapeutic composition to treat an animal with disease by controlling the activity of effector cells, including T cells, macrophages, monocytes and/or natural killer cells, in the animal. The present invention also relates to methods of **gene therapy** involving different modes of administration of a therapeutic composition to treat animals with different types of diseases. Also included in the present invention are recombinant molecules for use in a therapeutic composition and recombinant cells useful as a tumor vaccine. Therapeutic compositions of the present invention include superantigen-encoding nucleic acid molecules, either in the presence or absence of a cytokine-encoding nucleic acid molecule, depending upon the disease being treated.

5. 5,670,488, Sep. 23, 1997, **Adenovirus** vector for **gene therapy**; Richard J. Gregory, et al., 514/44; 424/93.2; 435/320.1; 935/62 [IMAGE AVAILABLE]

US PAT NO: 5,670,488 [IMAGE AVAILABLE]

L1: 5 of 8

ABSTRACT:

Gene Therapy vectors, which are especially useful for cystic fibrosis, and methods for using the vectors are disclosed.

6. 5,604,201, Feb. 18, 1997, Methods and reagents for inhibiting furin endoprotease; Gary Thomas, et al., 514/12; 435/252.3, 254.2, 320.1; 530/350; 536/23.5 [IMAGE AVAILABLE]

US PAT NO: 5,604,201 [IMAGE AVAILABLE]

L1: 6 of 8

ABSTRACT:

This invention relates to methods and reagents for inhibiting furin endoprotease activity and specifically for inhibiting furin endoprotease-mediated maturation of bioactive proteins in vivo and in vitro. The invention specifically provides proteins capable of inhibiting furin endoprotease activity. Particularly provided are .alpha..sub.1-antitrypsin variants that specifically inhibit furin endoprotease activity. Methods for using furin endoprotease inhibition to attenuate or prevent viral protein maturation, and thereby alleviate viral infections, are provided. Also provided are methods for using furin endoprotease inhibition to attenuate or prevent proteolytic processing of bacterial toxins, thereby alleviating bacterial infections. Methods are also provided to inhibit proteolytic processing of biologically active proteins and peptides. The invention also provides pharmaceutically acceptable compositions of therapeutically effective amounts of furin endoprotease inhibitors.

7. 5,552,529, Sep. 3, 1996, Autoantigen, pinch; Ann Rearden, 530/380; 424/185.1; 530/327, 806, 829 [IMAGE AVAILABLE]

ABSTRACT:

A novel autoantigenic polypeptide, PINCH, polynucleotides and antibodies that bind to PINCH are provided. A method for removing autoantibodies that bind to an epitope contained in PINCH from a sample, such as blood, and a method of treating autoimmune disorders associated with autoantibodies that bind an epitope in PINCH are also provided.

8. 5,534,256, Jul. 9, 1996, Haemophilus somnus outer membrane protein extract enriched with iron-regulated proteins; Andrew A. Potter, et al., 424/184.1, 193.1, 203.1, 236.1, 255.1, 256.1, 278.1, 282.1 [IMAGE AVAILABLE]

US PAT NO: 5,534,256 [IMAGE AVAILABLE]

L1: 8 of 8

ABSTRACT:

New subunit vaccines from Haemophilus somnus are disclosed. The vaccines include an outer membrane protein extract of H. somnus which is enriched with iron-regulated proteins. Additional antigens, such as antigens derived from Pasteurella haemolytica, can be included in the vaccine composition to provide protection against a variety of disease states.

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US PAT NO: 5,707,618 [IMAGE AVAILABLE]

L1: 3 of 8

DATE ISSUED: Jan. 13, 1998

TITLE: **Adenovirus** vectors for **gene therapy**

INVENTOR: Donna Armentano, Belmont, MA

Helen Romanczuk, Westboro, MA

Samuel Charles Wadsworth, Shrewsbury, MA

ASSIGNEE: Genzyme Corporation, Framingham, MA (U.S. corp.)

APPL-NO: 08/409,874

DATE FILED: Mar. 24, 1995

INT-CL: [6] A61K 48/00; C12N 15/00; C12N 5/00

US-CL-ISSUED: 424/93.21, 93.2; 435/172.3, 240.1, 240.2, 320.1; 514/44

US-CL-CURRENT: 424/93.21, 93.2; 435/172.3, 320.1; 514/44

SEARCH-FLD: 514/44, 2; 435/235.1, 172.1, 172.3, 240.1, 240.2, 91.1;
424/93.2, 93.21

REF-CITED:

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9424297	10/1994	World Intellectual Property Organization
9502697	1/1995	World Intellectual Property Organization
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LEGAL-REP: Brumbaugh, Graves, Donohue & Raymond

ABSTRACT:

The present invention relates to novel **adenovirus** vectors for use in **gene therapy** which are designed to prevent the generation of replication-competent **adenovirus** (RCA) during in vitro propagation and clinical use. The invention also provides methods for the production of the novel virus vectors. These vectors maximize safety for clinical applications in which **adenovirus** vectors are used to transfer genes into recipient cells for **gene therapy**.

8 Claims, 3 Drawing Figures

US PAT NO: 5,705,151 [IMAGE AVAILABLE] L1: 4 of 8
DATE ISSUED: Jan. 6, 1998
TITLE: **Gene therapy** for T cell regulation
INVENTOR: Steve W. Dow, Denver, CO
Robyn E. Elmslie, Denver, CO
ASSIGNEE: National Jewish Center for Immunology & Respiratory
Medicine, Denver, CO (U.S. corp.)
APPL-NO: 08/446,918
DATE FILED: May 18, 1995
INT-CL: [6] A61K 48/00; C12N 15/63; C12N 15/09; C12N 5/00
US-CL-ISSUED: 424/93.21, 450; 514/44; 435/69.1, 172.3, 7.2, 320.1;
935/62, 55, 54, 71
US-CL-CURRENT: 424/93.21, 450; 435/7.2, 69.1, 172.3, 320.1; 514/44;
935/54, 55, 62, 71
SEARCH-FLD: 514/44; 435/320.1, 240.2, 6, 7.1, 69.1, 172.3, 69.5T, 7.2;
935/62, 52, 55, 56, 57, 32, 54, 66, 70, 71, 33, 34, 72,
65; 424/93.1, 93.2T, 130.1, 450; 536/23T
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ART-UNIT: 189
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ASST-EXMR: Karen M. Hauda
LEGAL-REP: Sherida Ross P.C.

ABSTRACT:

The present invention provides a nucleic acid-based therapeutic composition to treat an animal with disease by controlling the activity of effector cells, including T cells, macrophages, monocytes and/or natural killer cells, in the animal. The present invention also relates to methods of **gene therapy** involving different modes of administration of a therapeutic composition to treat animals with different types of diseases. Also included in the present invention are recombinant molecules for use in a therapeutic composition and recombinant cells useful as a tumor vaccine. Therapeutic compositions of the present invention include superantigen-encoding nucleic acid molecules, either in the presence or absence of a cytokine-encoding nucleic acid molecule, depending upon the disease being treated.

52 Claims, 10 Drawing Figures

US PAT NO: 5,670,488 [IMAGE AVAILABLE] L1: 5 of 8
DATE ISSUED: Sep. 23, 1997
TITLE: **Adenovirus** vector for **gene therapy**
INVENTOR: Richard J. Gregory, Carlsbad, CA
Donna Armentano, Watertown, MA
Larry A. Couture, Framingham, MA
Alan E. Smith, Wellesley, MA
ASSIGNEE: Genzyme Corporation, Framingham, MA (U.S. corp.)
APPL-NO: 08/136,742
DATE FILED: Oct. 13, 1993
REL-US-DATA: Continuation-in-part of Ser. No. 985,478, Dec. 3, 1992,
abandoned.
INT-CL: [6] A61K 48/00; C12N 15/00
US-CL-ISSUED: 514/44; 424/93.2; 435/320.1; 935/62
US-CL-CURRENT: 514/44; 424/93.2; 435/320.1; 935/62
SEARCH-FLD: 435/320.1; 514/44; 424/93.2; 935/62
REF-CITED:

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WO 91/02796 8/1990 World Intellectual Property
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- ART-UNIT: 189
- PRIM-EXMR: Deborah Crouch
- LEGAL-REP: Brumbaugh, Graves Donohue & Raymond

ABSTRACT:

Gene Therapy vectors, which are especially useful for cystic

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US PAT NO: 5,670,488 [IMAGE AVAILABLE]

L1: 5 of 8

CLAIMS:

CLMS(1)

We claim:

1. An adenoviral vector comprising an **adenovirus** genome from which one or more of the E4 open reading frames has been deleted, but retaining sufficient E4 sequences to promote virus replication in vitro, and additionally comprising a DNA sequence of interest operably linked to expression control sequences and inserted into said adenoviral genome.

CLMS(2)

2. The vector of claim 1 wherein a PGK promoter is operably linked to the DNA sequence of interest.

CLMS(3)

3. The vector of claim 1 from which the Ela and Elb regions of the **adenovirus** genome have been deleted.

CLMS(4)

4. The vector of claim 1 from which the E3 region of the **adenovirus** genome has been deleted.

CLMS(5)

5. The adenoviral vector of claim 1 in which open reading frame 6 of the E4 region is retained in the **adenovirus** genome.

CLMS(6)

6. The adenoviral vector of claim 1 in which open reading frame 3 of the E4 region is retained in the **adenovirus** genome.

CLMS(7)

7. The adenoviral vector of claim 1 wherein the DNA sequence encodes cystic fibrosis transmembrane regulator protein.

CLMS(8)

8. The adenoviral vector of claim 2 wherein the DNA sequence encodes cystic fibrosis transmembrane regulator protein.

CLMS(9)

9. The adenoviral vector of claim 3 wherein the DNA sequence encodes cystic fibrosis transmembrane regulator protein.

CLMS(10)

10. The adenoviral vector of claim 3 wherein the DNA sequence is inserted into the deleted Ela and Elb regions of the adenoviral genome.

CLMS (11)

11. The adenoviral vector of claim 5 wherein the DNA sequence encodes cystic fibrosis transmembrane regulator protein.

CLMS (12)

12. The adenoviral vector of claim 6 wherein a cytomegalovirus promoter is operably linked to the DNA sequence of interest.

CLMS (13)

13. A method for providing cystic fibrosis transmembrane conductance regulator protein to airway epithelial cells of a cystic fibrosis patient comprising administering directly to airway epithelial cells of the patient an adenoviral vector, said vector comprising an **adenovirus** genome from which one or more E4 open reading frames has been deleted, but retaining sufficient E4 sequences to promote virus replication in vitro, and additionally comprising a DNA sequence encoding cystic fibrosis transmembrane regulator protein operably linked to expression control sequences and inserted into the E1 region said adenoviral genome, under conditions whereby the DNA sequence encoding cystic fibrosis transmembrane regulator protein is expressed and a functional chloride ion channel is produced in the airway epithelial cells of the patient.

CLMS (14)

14. The method of claim 13 wherein open reading frame 6 of the E4 region of the **adenovirus** genome is retained in the vector.

CLMS (15)

15. The method of claim 13 wherein the expression control sequences operably linked to the DNA sequence comprise the PGK promoter.

CLMS (16)

16. The method of claim 13 in which the Ela and Elb regions of the **adenovirus** genome of the vector have been deleted.

CLMS (17)

17. The method of claim 13 in which the E3 region of the **adenovirus** genome of the vector has been deleted.

CLMS (18)

18. The method of claim 13 wherein open reading frame 3 of the E4 region of the **adenovirus** genome is retained in the vector.

CLMS (19)

19. The method of claim 18 wherein the expression control sequences operably linked to the DNA sequence comprise a cytomegalovirus promoter.

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US PAT NO:	5,780,300 [IMAGE AVAILABLE]	L1: 1 of 8
DATE ISSUED:	Jul. 14, 1998	
TITLE:	Manipulation of non-terminally differentiated cells using the notch pathway	
INVENTOR:	Spyridon Artavanis-Tsakonas, Hamden, CT Mark Edward Fortini, New Haven, CT	

Kenji Matsuno, New Haven, CT
 ASSIGNEE: Yale University, New Haven, CT (U.S. co
 APPL-NO: 08/537,210
 DATE FILED: Sep. 29, 1995
 INT-CL: [6] C12N 5/08; C12N 5/02; C12N 5/06
 US-CL-ISSUED: 435/377, 325, 366, 372, 375
 US-CL-CURRENT: 435/377, 325, 366, 372, 375
 SEARCH-FLD: 435/6, 69.1, 325, 366, 372, 377, 375
 REF-CITED:

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ART-UNIT: 185
 PRIM-EXMR: Nancy Degen
 LEGAL-REP: Pennie & Edmonds LLP

ABSTRACT:

The present invention is directed to methods for the expansion of non-terminally differentiated cells ("precursor cells") using agonists of Notch function, by inhibiting the differentiation of the cells without inhibiting proliferation (mitotic activity) such that an expanded population of non-terminally differentiated cells is obtained. The cells are preferably stem or progenitor cells. These expanded cells can be used in cell replacement therapy to provide desired cell populations and help in the regeneration of diseased and/or injured tissues. The expanded cell populations can also be made recombinant and used for **gene therapy**, or can be used to supply functions associated with a particular precursor cell or its progeny cell.

40 Claims, 16 Drawing Figures

US PAT NO: 5,741,772 [IMAGE AVAILABLE] L1: 2 of 8
 DATE ISSUED: Apr. 21, 1998
 TITLE: Neurotrophic factor NNT-1
 INVENTOR: Ming-shi Chang, Newbury Park, CA
 ASSIGNEE: Amgen Inc., Thousand Oaks, CA (U.S. corp.)
 APPL-NO: 08/792,019
 DATE FILED: Feb. 3, 1997
 INT-CL: [6] A01N 37/18; A61K 38/00
 US-CL-ISSUED: 514/2; 530/300, 350
 US-CL-CURRENT: 514/2; 530/300, 350
 SEARCH-FLD: 530/300, 350; 514/2
 REF-CITED:

OTHER PUBLICATIONS

Humpel, et al., Science, 269:552-554 [1995].
 Isackson, Current Opinions in Neurobiology 5:50-357 [1995].
 MacDonald and Hendrikson, Cell, 73:421-424 [1993].
 Nedivi et al (Nature, 363:718-722 [1993].
 Nedivi et al., Proc. Natl. Acad. Sci USA, 93:2048-2053 [1996].
 ART-UNIT: 188

PRIM-EXMR: Marian Knode
ASST-EXMR: Heathe Bakalyar
LEGAL-REP: Robert R. Cook, Ron K. Levy, Steven Odre

ABSTRACT:

Disclosed are nucleic acids encoding novel neurotrophic factors, designated NNT-1. Also disclosed are amino acid sequences for NNT-1 polypeptides, methods for preparing NNT-1 polypeptides, and other related aspects.

6 Claims, 14 Drawing Figures

US PAT NO: 5,707,618 [IMAGE AVAILABLE] L1: 3 of 8
DATE ISSUED: Jan. 13, 1998
TITLE: **Adenovirus** vectors for **gene therapy**
INVENTOR: Donna Armentano, Belmont, MA
Helen Romanczuk, Westboro, MA
Samuel Charles Wadsworth, Shrewsbury, MA
ASSIGNEE: Genzyme Corporation, Framingham, MA (U.S. corp.)
APPL-NO: 08/409,874
DATE FILED: Mar. 24, 1995
INT-CL: [6] A61K 48/00; C12N 15/00; C12N 5/00
US-CL-ISSUED: 424/93.21, 93.2; 435/172.3, 240.1, 240.2, 320.1; 514/44
US-CL-CURRENT: 424/93.21, 93.2; 435/172.3, 320.1; 514/44
SEARCH-FLD: 514/44, 2; 435/235.1, 172.1, 172.3, 240.1, 240.2, 91.1;
424/93.2, 93.21
REF-CITED:

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9424297	10/1994	World Intellectual Property Organization
9502697	1/1995	World Intellectual Property Organization
WO9511984	5/1995	World Intellectual Property Organization

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Klessig, D. et al., Mol. Cell. Biol. 4:1354-1362, 1984.
Weinberg, D. et al., P. Natl. Acad. Sci. USA 80:5383-5386, 1983.
ART-UNIT: 184
PRIM-EXMR: Jacqueline M. Stone
ASST-EXMR: Andrew Milne
LEGAL-REP: Brumbaugh, Graves, Donohue & Raymond

ABSTRACT:

The present invention relates to novel **adenovirus** vectors for use in **gene therapy** which are designed to prevent the generation of replication-competent **adenovirus** (RCA) during in vitro propagation and clinical use. The invention also provides methods for the production of the novel virus vectors. These vectors maximize safety for clinical applications in which **adenovirus** vectors are used to transfer genes into recipient cells for **gene therapy**.

8 Claims, 3 Drawing Figures

=> s adenovir?(5A)vector? and gene therapy

2971 ADENOVIR?
67874 VECTOR?
572 ADENOVIR?(5A)VECTOR?
18155 GENE
37863 THERAPY
1230 GENE THERAPY
(GENE(W)THERAPY)

L2 258 ADENOVIR?(5A)VECTOR? AND GENE THERAPY

=> s l2 and thymidine kinase?

7525 THYMIDINE
7859 KINASE?
1475 THYMIDINE KINASE?
(THYMIDINE(W)KINASE?)

L3 97 L2 AND THYMIDINE KINASE?

=> s l3 and prodrug?

2808 PRODRUG?
8 L3 AND PRODRUG?

L4

=> d 14,1-8,cit

1. 5,772,993, Jun. 30, 1998, Osteocalcin promoter-based toxic **gene therapy** for the treatment of calcified tumors and tissues; Leland W. K. Chung, et al., 424/93.6, 9.2; 435/71.2, 320.1; 514/44 [IMAGE AVAILABLE]
2. 5,731,182, Mar. 24, 1998, Non-mammalian DNA virus to express an exogenous gene in a mammalian cell; Frederick M. Boyce, 435/183, 69.1, 70.1, 320.1 [IMAGE AVAILABLE]
3. 5,716,832, Feb. 10, 1998, Packaging cells; Jack R. Barber, et al., 435/172.3, 325 [IMAGE AVAILABLE]
4. 5,698,446, Dec. 16, 1997, Methods and compositions for inhibiting production of replication competent virus; Wolfgang M. Klump, et al., 435/350, 320.1, 366 [IMAGE AVAILABLE]
5. 5,691,177, Nov. 25, 1997, Recombinant retroviruses expressing a protein that converts a pro-drug into a cytotoxic agent; Harry E. Guber, et al., 435/172.3, 69.1, 372 [IMAGE AVAILABLE]
6. 5,631,236, May 20, 1997, **Gene therapy** for solid tumors, using

a DNA sequence encoding HSV-Tk or VZV-Tk; Savio L. C. Woo, et al.,
514/44; 424/93.6; 435/320.1 [IMAGE AVAILABLE]

7. 5,591,624, Jan. 7, 1997, Retroviral packaging cell lines; Jack R.
Barber, et al., 435/366, 172.3, 320.1, 369 [IMAGE AVAILABLE]

8. 5,352,595, Oct. 4, 1994, Myod regulatory region; Stephen J. Tapscott,
et al., 435/172.3, 320.1, 325, 354, 357; 536/24.1 [IMAGE AVAILABLE]

=> d 14,6, fro

US PAT NO: 5,631,236 [IMAGE AVAILABLE] L4: 6 of 8
DATE ISSUED: May 20, 1997
TITLE: **Gene therapy** for solid tumors, using a DNA
sequence encoding HSV-Tk or VZV-Tk
INVENTOR: Savio L. C. Woo, Houston, TX
Shu-Hsia Chen, Houston, TX
ASSIGNEE: Baylor College of Medicine, Houston, TX (U.S. corp.)
APPL-NO: 08/112,745
DATE FILED: Aug. 26, 1993
INT-CL: [6] A61K 48/00; A01N 63/00; C12N 5/00
US-CL-ISSUED: 514/44; 424/93.6; 435/320.1
US-CL-CURRENT: 514/44; 424/93.6; 435/320.1
SEARCH-FLD: 514/44
REF-CITED:

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in Mice of an Enzyme-Encoding Gene Using a Human Adenovirus Vector;
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carcinoma in vivo; Proc. Natl. Acad. Sci. USA; 92:2577-2581 (1995).
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HSV Thymidine Kinase Gene Transfer In Vivo; J. Invest. Dermatol.;
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Carcinoma Growing in Athymic Nude Mice; Cancer 8:2051-56 (1992).
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 Rosenfeld et al (1991) Science 252, 431-434.
 Culver et al (1992) Science 256, 1550-1552.
 ART-UNIT: 184
 PRIM-EXMR: Jacqueline M. Stone
 ASST-EXMR: Deborah Crouch
 LEGAL-REP: Fulbright & Jaworski LLP

ABSTRACT:

The present invention provides a novel method of treating localized solid tumors and papilloma in an individual. The method comprises introducing a recombinant **adenoviral vector** containing the herpes simplex virus-**thymidine kinase** gene. Subsequently, a **prodrug**, such as the drug ganciclovir, is administered to the individual. The methods of the present invention may be used to treat several different types of cancers and papillomas, including colon carcinoma, prostate cancer, breast cancer, lung cancer, melanoma, hepatoma, brain and head and neck cancer.

6 Claims, 16 Drawing Figures

=> d 1, fro

US PAT NO: 5,772,993 [IMAGE AVAILABLE] L4: 1 of 8
 DATE ISSUED: Jun. 30, 1998
 TITLE: Osteocalcin promoter-based toxic **gene therapy** for the treatment of calcified tumors and tissues
 INVENTOR: Leland W. K. Chung, Lovingson, VA
 Chinghai Kao, Charlottesville, VA
 Robert A. Sikes, Charlottesville, VA
 Song-Chu Ko, Charlottesville, VA
 Jun Cheon, Sol, Republic of Korea
 ASSIGNEE: The University of Virginia Patent Foundation, Charlottesville, VA (U.S. corp.)
 APPL-NO: 08/785,088
 DATE FILED: Jan. 21, 1997
 INT-CL: [6] A61K 48/00; A01N 63/00; C12P 21/04; C12N 15/00
 US-CL-ISSUED: 424/93.6; 514/44; 435/320.1, 71.2; 424/9.2
 US-CL-CURRENT: 424/93.6, 9.2; 435/71.2, 320.1; 514/44
 SEARCH-FLD: 424/9.2, 93.6; 514/44; 435/320.1, 71.2
 REF-CITED:

OTHER PUBLICATIONS

Su et al Human Gene Therapy (1996) Mar. 1 7(4) 463-70.
 Henderson et al WO 9701358 Jan. 16, 1997.
 Ko et al Cancer Res Oct. 15, 1996, 56(20) pp. 4614-4619..

ART-UNIT: 186
 PRIM-EXMR: Lila Feisee
 ASST-EXMR: Geetha P. Bansal
 LEGAL-REP: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

ABSTRACT:

A recombinant adenovirus Ad-OC-TK was constructed, with cell specific gene expression, which contains osteocalcin (OC) promoter that drives the expression of herpes simplex virus **thymidine kinase** (TK); the

- addition of acyclovir (ACV), a pro-drug for the inhibition of cell proliferation, to Ad-OC-TK resulted in the induction of osteoblast-specific cell death in vitro. The Ad-OC-TK virus plus ACV treatment is highly selective in blocking the growth of both murine and human osteosarcoma cell lines in vitro and murine osteosarcoma in vivo.

6 Claims, 20 Drawing Figures

08/958570

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      16723  THYMIDINE KINASE?
S1      728  ADENOVIRUS? AND THYMIDINE KINASE?
? s s1 and gene therapy?

      728  S1
      42313  GENE THERAPY?
S2      337  S1 AND GENE THERAPY?
? s s2 and prodrug?

      337  S2
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S3      60  S2 AND PRODRUG?
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09559188 98280347

In vivo **adenovirus**-mediated **prodrug** gene therapy for
carcinoembryonic antigen-producing pancreatic cancer.

Ohashi M; Kanai F; Tanaka T; Lan KH; Shiratori Y; Komatsu Y; Kawabe T;
Yoshida H; Hamada H; Omata M

Second Department of Internal Medicine, Faculty of Medicine, University
of Tokyo.

Jpn J Cancer Res (JAPAN) Apr 1998, 89 (4) p457-62, ISSN 0910-5050
Journal Code: HBA

Languages: ENGLISH

Document type: JOURNAL ARTICLE

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09550709 98276752

Severe hepatic dysfunction after **adenovirus**-mediated transfer of the herpes simplex virus thymidine kinase gene and ganciclovir administration.

van der Eb MM; Cramer SJ; Vergouwe Y; Schagen FH; van Krieken JH; van der Eb AJ; Rinkes IH; van de Velde CJ; Hoeben RC

Department of Surgery, Leiden University Medical Center, The Netherlands.

Gene Ther (ENGLAND) Apr 1998, 5 (4) p451-8, ISSN 0969-7128

Journal Code: CCE

Languages: ENGLISH

Document type: JOURNAL ARTICLE

- end of record -

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DIALOG(R)File 154:MEDLINE(R)
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09468305 98196519

Adenoviral-mediated transfer of a heat-inducible double suicide gene into prostate carcinoma cells.

Blackburn RV; Galoforo SS; Corry PM; Lee YJ

Department of Radiation Oncology, William Beaumont Hospital, Royal Oak, Michigan 48073-6769, USA.

Cancer Res (UNITED STATES) Apr 1 1998, 58 (7) p1358-62, ISSN 0008-5472 Journal Code: CNF

Contract/Grant No.: CA48000, CA, NCI; CA44550, CA, NCI

Languages: ENGLISH

Document type: JOURNAL ARTICLE

- end of record -

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Display 4/3/4 (Item 4 from file: 154)
DIALOG(R)File 154:MEDLINE(R)
(c) format only 1998 Dialog Corporation. All rts. reserv.

09420935 98133159

Characterization of the antitumor immune response generated by treatment of murine tumors with recombinant **adenoviruses** expressing HSVtk, IL-2, IL-6 or B7-1.

Felzmann T; Ramsey WJ; Blaese RM

Clinical Gene Therapy Branch, NHGRI, NIH, Bethesda, MD, USA.

Gene Ther (ENGLAND) Dec 1997, 4 (12) p1322-9, ISSN 0969-7128

Journal Code: CCE

Languages: ENGLISH

Document type: JOURNAL ARTICLE

- end of record -

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DIALOG(R)File 154:MEDLINE(R)
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09308508 97425065

Gene therapy vector: **adenovirus** vector]

Saito I

Laboratory of Molecular Genetics, University of Tokyo, Japan.

Tanpakushitsu Kakusan Koso (JAPAN) Jul 1997, 42 (10 Suppl) p1798-805,
ISSN 0039-9450 Jour Code: Q7D
Languages: JAPANESE
Document type: JOURNAL ARTICLE; REVIEW; REVIEW, TUTORIAL

- end of record -

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09290044 98010140

Retinoids augment the bystander effect in vitro and in vivo in herpes simplex virus thymidine kinase/ganciclovir-mediated gene therapy.

Park JY; Elshami AA; Amin K; Rizk N; Kaiser LR; Albelda SM
Department of Medicine, Kyunpook National University School of Medicine, Korea.

Gene Ther (ENGLAND) Sep 1997, 4 (9) p909-17, ISSN 0969-7128
Journal Code: CCE

Contract/Grant No.: PO1 66726
Languages: ENGLISH
Document type: JOURNAL ARTICLE

- end of record -

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DIALOG(R)File 154:MEDLINE(R)
(c) format only 1998 Dialog Corporation. All rts. reserv.

09144104 97397467

The effect of promoter strength in adenoviral vectors containing herpes simplex virus thymidine kinase on cancer gene therapy in vitro and in vivo.

Elshami AA; Cook JW; Amin KM; Choi H; Park JY; Coonrod L; Sun J; Molnar-Kimber K; Wilson JM; Kaiser LR; Albelda SM

Department of Medicine, University of Pennsylvania Medical Center, Philadelphia, USA.

Cancer Gene Ther (UNITED STATES) Jul-Aug 1997, 4 (4) p213-21, ISSN 0929-1903 Journal Code: CE3

Contract/Grant No.: PO1 66726
Languages: ENGLISH
Document type: JOURNAL ARTICLE

- end of record -

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Display 4/3/8 (Item 8 from file: 154)
DIALOG(R)File 154:MEDLINE(R)
(c) format only 1998 Dialog Corporation. All rts. reserv.

09108617 97372865

Adenoviral thymidine kinase **prodrug** gene therapy inhibits sarcoma growth in vivo.

Ross HM; Hirschowitz EA; Russi TJ; Crystal RG; Nawata S; Burt ME; Brennan MF; Lewis JJ

Department of Surgery, Memorial Sloan-Kettering Cancer Center, New York, New York, USA.

J Surg Res (UNITED STATES) Jun 1997, 70 (1) p7-11, ISSN 0022-4804
Journal Code: K7B

Languages: ENGLISH
Document type: JOURNAL ARTICLE

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Display 4/3/9 (Item 9 from file: 154)
DIALOG(R)File 154:MEDLINE(R)
(c) format only 1998 Dialog Corporation. All rts. reserv.

08940238 97189005

Adenovirus -mediated suicide gene therapy for experimental bladder cancer.

Sutton MA; Berkman SA; Chen SH; Block A; Dang TD; Kattan MW; Wheeler TM; Rowley DR; Woo SL; Lerner SP

Scott Department of Urology, Baylor College of Medicine, Houston, TX 77030, USA.

Urology (UNITED STATES) Feb 1997, 49 (2) p173-80, ISSN 0090-4295
Journal Code: WSY

Languages: ENGLISH

Document type: JOURNAL ARTICLE

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Display 4/3/10 (Item 10 from file: 154)
DIALOG(R)File 154:MEDLINE(R)
(c) format only 1998 Dialog Corporation. All rts. reserv.

08651357 96317698

[Gene therapy for cancer]

Sakamaki S; Niitsu Y

Fourth Department of Internal Medicine, Sapporo Medical University School of Medicine, Japan.

Hokkaido Igaku Zasshi (JAPAN) Jan 1996, 71 (1) p15-20, ISSN 0367-6102
Journal Code: GA9

Languages: JAPANESE Summary Languages: ENGLISH

Document type: JOURNAL ARTICLE; REVIEW; REVIEW, TUTORIAL English Abstract

- end of record -

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Display 4/3/11 (Item 11 from file: 154)
DIALOG(R)File 154:MEDLINE(R)
(c) format only 1998 Dialog Corporation. All rts. reserv.

08495108 96051281

Gene therapy for hepatocellular carcinoma: chemosensitivity conferred by **adenovirus**-mediated transfer of the HSV-1 thymidine kinase gene.

Wills KN; Huang WM; Harris MP; Machemer T; Maneval DC; Gregory RJ

CANJ1, Inc., San Diego, California 92121, USA.

Cancer Gene Ther (UNITED STATES) Sep 1995, 2 (3) p191-7, ISSN 0929-1903
Journal Code: CE3

Languages: ENGLISH

Document type: JOURNAL ARTICLE

- end of record -

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Display 4/3/12 (Item 12 from file: 154)
DIALOG(R)File 154:MEDLINE(R)
(c) format only 1998 Dialog Corporation. All rts. reserv.

08030924 95024189

In vivo suppression of injury-induced vascular smooth muscle cell accumulation using **adenovirus**-mediated transfer of the herpes simplex virus thymidine kinase gene.

Guzman RJ; Hirschowitz EA; Brody SL; Crystal RG; Epstein SE; Finkel T

Cardiology Branch, National Heart, Lung, and Blood Institute, National

Institutes of Health, Bethesda, MD 20892.
Proc Natl Acad Sci U S A (UNITED STATES) Oct 25 19 91 (22) p10732-6
, ISSN 0027-8424 Journal Code: PV3
Languages: ENGLISH
Document type: JOURNAL ARTICLE

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Display 4/3/13 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 1998 Inst for Sci Info. All rts. reserv.

06374820 Genuine Article#: YN172 No. References: 26
Title: **Adenovirus**-mediated enzyme-**prodrug** therapy for cancer
Author(s): Kanai F (REPRINT) ; Hamada H; Shiratori Y; Omata M
Corporate Source: UNIV TOKYO,FAC MED, DEPT INTERNAL MED 2, BUNKYO KU, 7-3-1
HONGO/TOKYO 113//JAPAN/ (REPRINT); JAPANESE FDN CANC RES,CTR CANC
CHEMOTHERAPY, DEPT MOL BIOTHERAPY RES, TOSHIMA KU/TOKYO 170//JAPAN/
Journal: CANCER JOURNAL, 1997, V10, N6 (NOV-DEC), P301-305
ISSN: 0765-7846 Publication date: 19971100
Publisher: ASSOC DEVELOPPEMENT COMMUNICATION CANCEROLOGIQUE, CANCER
JOURNAL, 7 RUE GUY MOQUET, BP 8, 94801 VILLEJUIF, FRANCE
Language: English Document Type: REVIEW (ABSTRACT AVAILABLE)

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Display 4/3/14 (Item 2 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 1998 Inst for Sci Info. All rts. reserv.

06315655 Genuine Article#: YJ111 No. References: 41
Title: Suicide genes for gene therapy of cancer
Author(s): Finocchiaro G; Rosolen A
Corporate Source: NEUROL NATL INST CARLO BESTA,DEPT BIOCHEM & GENET/I-20133
MILAN//ITALY//; UNIV PADUA,DEPT PEDIAT/I-35100 PADUA//ITALY/
Journal: MINERVA BIOTECNOLOGICA, 1997, V9, N4 (DEC), P188-195
ISSN: 1120-4826 Publication date: 19971200
Publisher: EDIZIONI MINERVA MEDICA, CORSO BRAMANTE 83-85 INT JOURNALS
DEPT., 10126 TURIN, ITALY
Language: English Document Type: ARTICLE (ABSTRACT AVAILABLE)

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Display 4/3/15 (Item 3 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 1998 Inst for Sci Info. All rts. reserv.

05630389 Genuine Article#: WM093 No. References: 36
Title: Possibilities of gene therapies for cancer
Author(s): Lashford LS (REPRINT)
Corporate Source: CHRISTIE HOSP NHS TRUST,ACAD UNIT PAEDIAT ONCOL, WILMSLOW
RD/MANCHESTER M20 4BX/LANCS/ENGLAND/ (REPRINT)
Journal: ANNALS OF MEDICINE, 1997, V29, N1 (FEB), P1-4
ISSN: 0785-3890 Publication date: 19970200
Publisher: BLACKWELL SCIENCE LTD, OSNEY MEAD, OXFORD, OXON, ENGLAND OX2 0EL
Language: English Document Type: EDITORIAL MATERIAL (ABSTRACT AVAILABLE
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Display 4/3/16 (Item 4 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 1998 Inst for Sci Info. All rts. reserv.

05567731 Genuine Article#: WG542 No. References: 48
Title: Gene-directed enzyme **prodrug** therapy (GDEPT): Choice of
prodrugs

Author(s): Springer CJ (REPRINT) ; NiculescuDuvaz I
Corporate Source: INST CANC RES,CRC, CTR CANC THERAPEUT, 15 COTSWOLD
RD/SUTTON SM2 5NG/SURREY/ENGLAND/ (REPRINT)
Journal: ADVANCED DRUG DELIVERY REVIEWS, 1996, V22, N3 (DEC 15), P351-364
ISSN: 0169-409X Publication date: 19961215
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS
Language: English Document Type: REVIEW (ABSTRACT AVAILABLE)

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Display 4/3/17 (Item 5 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 1998 Inst for Sci Info. All rts. reserv.

05429352 Genuine Article#: VY322 No. References: 308
Title: APPROACHES TO ENHANCE CANCER RADIOTHERAPY EMPLOYING GENE-TRANSFER
METHODS
Author(s): BUCHSBAUM DJ; RABEN D; STACKHOUSE MA; KHAZAELI MB; ROGERS BE;
ROSENFELD ME; LIU T; CURIEL DT
Corporate Source: UNIV ALABAMA,GENE THERAPY PROGRAM,1824 6TH AVE
S/BIRMINGHAM//AL/35294; UNIV ALABAMA,GENE THERAPY
PROGRAM/BIRMINGHAM//AL/35294; UNIV ALABAMA,DEPT RADIAT
ONCOL/BIRMINGHAM//AL/00000; UNIV ALABAMA,DEPT MED/BIRMINGHAM//AL/35294
Journal: GENE THERAPY, 1996, V3, N12 (DEC), P1042-1068
ISSN: 0969-7128
Language: ENGLISH Document Type: REVIEW (Abstract Available)

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Display 4/3/18 (Item 6 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 1998 Inst for Sci Info. All rts. reserv.

05082471 Genuine Article#: TN767 No. References: 37
Title: EXPRESSION OF THE BACTERIAL NITROREDUCTASE ENZYME IN MAMMALIAN-CELLS
RENDERS THEM SELECTIVELY SENSITIVE TO KILLING BY THE **PRODRUG**
CB1954
Author(s): BRIDGEWATER JA; SPRINGER CJ; KNOX RJ; MINTON NP; MICHAEL NP;
COLLINS MK
Corporate Source: CHESTER BEATTY LABS,CRC,CTR CELL & MOLEC BIOL,237 FULHAM
RD/LONDON SW3 6JB//ENGLAND/; CHESTER BEATTY LABS,CRC,CTR CELL & MOLEC
BIOL/LONDON SW3 6JB//ENGLAND/; INST CANC RES,CRC,CTR CANC
THERAPEUT/SUTTON SM25NG/SURREY/ENGLAND/; CTR APPL MICROBIOL & RES,DIV
RES,DEPT MOLEC MICROBIOL/SALISBURY SP4 0JG/WILTS/ENGLAND/
Journal: EUROPEAN JOURNAL OF CANCER, 1995, V031A, N13-1 (DEC), P2362-2370
ISSN: 0959-8049
Language: ENGLISH Document Type: ARTICLE (Abstract Available)

- end of record -

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Display 4/3/19 (Item 7 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 1998 Inst for Sci Info. All rts. reserv.

04913455 Genuine Article#: UR302 No. References: 34
Title: GENE-THERAPY FOR MALIGNANT GLIOMAS USING REPLICATION INCOMPETENT

RETROVIRAL AND ADENOVIRAL VECTORS ENCODING THE CYTOSROME-P450 2B1 GENE
TOGETHER WITH CYCLOPHOSPHAMIDE

Author(s): MANOME Y; WEN PY; CHEN L; TANAKA T; DONG Y; YAMAZOE M;
HIRSHOWITZ A; KUFU DW; FINE HA

Corporate Source: HARVARD UNIV, SCH MED, DANA FARBER CANC INST, DIV CANC
PHARMACOL, DANA 1560, 44 BINNEY ST/BOSTON//MA/02115; HARVARD UNIV, SCH
MED, DANA FARBER CANC INST, DIV CANC PHARMACOL/BOSTON//MA/02115; HARVARD
UNIV, BRIGHAM & WOMENS HOSP, SCH MED, DIV NEUROL/BOSTON//MA/02115

Journal: GENE THERAPY, 1996, V3, N6 (JUN), P513-520

ISSN: 0969-7128

Language: ENGLISH Document Type: ARTICLE (Abstract Available)

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Display 4/3/20 (Item 1 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 1998 Elsevier Science B.V. All rts. reserv.

10586787 EMBASE No: 97365586

Relative efficiency of tumor cell killing in vitro by two enzyme-
prodrug systems delivered by identical **adenovirus** vectors

Lockett L.J.; Molloy P.L.; Russell P.J.; Both G.W.

G.W. Both, Division of Molecular Science, CSIRO, P.O. Box 184, North
Ryde, NSW 2113 Australia

Clinical Cancer Research (United States) , 1997, 3/11 (2075-2080)

CODEN: CCREF ISSN: 1078-0432

DOCUMENT TYPE: Journal Article

LANGUAGES: ENGLISH SUMMARY LANGUAGES: ENGLISH

NUMBER OF REFERENCES: 29

- end of record -

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Display 4/3/21 (Item 2 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 1998 Elsevier Science B.V. All rts. reserv.

10087186 EMBASE No: 96280007

Use of von Willebrand factor promoter to transduce suicidal gene to human
endothelial cells, HUVEC

Ozaki K.; Yoshida T.; Ide H.; Saito I.; Ikeda Y.; Sugimura T.; Terada M.

Genetics Division, Natl. Cancer Center Research Inst., 5-1-1 Tsukiji,
Chuo-ku, Tokyo 104 Japan

Human Gene Therapy (USA) , 1996, 7/13 (1483-1490)

CODEN: HGTHE ISSN: 1043-0342

LANGUAGES: English SUMMARY LANGUAGES: English

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Display 4/3/22 (Item 3 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 1998 Elsevier Science B.V. All rts. reserv.

9903003 EMBASE No: 96085188

Adenovirus-mediated **prodrug** gene therapy for carcinoembryonic
antigen- producing human gastric carcinoma cells in vitro

Tanaka T.; Kanai F.; Okabe S.; Yoshida Y.; Wakimoto H.; Hamada H.;
Shiratori Y.; Lan K.-H.; Ishitobi M.; Omata M.

Second Dept. of Internal Medicine, Faculty of Medicine, University of
Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113 Japan

Cancer Research (USA) , 1996, 56/6 (1341-1345)

CODEN: CNREA ISSN: 0008-5472

LANGUAGES: English SUMMARY LANGUAGES: English

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Display 4/3/23 (Item 1 from file: 76)
DIALOG(R)File 76:Life Sciences Collection
(c) 1998 Cambridge Sci Abs. All rts. reserv.

01958042 3798439

In vivo marking of spontaneous or vaccine-induced fibrosarcomas in the domestic house cat, using an adenoviral vector containing a bifunctional fusion protein, GAL-TEK

Marini, F.C., III; Cannon, J.P.; Belmont, J.W.; Shillitoe, E.J.; Lapeyre, J. N.

Dep. Exp. Pathol., Univ. Texas M.D. Anderson Cancer Cent., Houston, TX 77054, USA

HUM. GENE THER. vol. 6, no. 9, pp. 1215-1223 (1995)

ISSN: 1043-0342

DOCUMENT TYPE: Journal article LANGUAGE: ENGLISH

SUBFILE: Human Genome Abstracts; Agricultural and Environmental Biotechnology Abstracts

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Display 4/3/24 (Item 1 from file: 94)
DIALOG(R)File 94:JICST-EPlus
(c)1998 Japan Science and Tech Corp(JST). All rts. reserv.

04325664 JICST ACCESSION NUMBER: 97A0928215 FILE SEGMENT: JICST-E
New Device for Cancer Gene Therapy. Gene therapy by tumor-specific

prodrug activation.

KANAI FUMIHIKO (1); OMATA MASAO (1); HAMADA HIROFUMI (2)

(1) Univ. of Tokyo, Fac. of Med.; (2) Cancer Chemother. Center, Jpn. Found. for Cancer Res.

Ketsueki, Shuyoka(Hematology & Oncology), 1997, VOL.35,NO.4, PAGE.347-352, FIG.1, TBL.2, REF.20

JOURNAL NUMBER: Z0127BBF ISSN NO: 0915-8529

UNIVERSAL DECIMAL CLASSIFICATION: 616-08

LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Journal

ARTICLE TYPE: Commentary

MEDIA TYPE: Printed Publication

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Display 4/3/25 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal
(c) 1998 INIST/CNRS. All rts. reserv.

13162102 PASCAL No.: 97-0423639

Preclinical testing of recombinant adenoviral herpes simplex virus-thymidine kinase gene therapy for central nervous system malignancies. Commentaries

VINCENT A J P E; ESANDI M DEL C; AVEZAAT C J J; VECHE C; SMITT P S; VAN BEKKUM D W; VALERIO D; HOOGERBRUGGE P M; BOUT A; BLACK K L comment; RUTKA J T comment; ZLOKOVIC B V comment

Department of Neurosurgery, University Hospital Rotterdam, Netherlands; Section Group Gene Therapy, Department of Medical Biochemistry, University of Leiden, Netherlands; Department of Neuro-oncology, Daniel den Hoed Clinic Rotterdam, Netherlands; IntroGene BV, Rijswijk, Netherlands; Department of Pediatrics, University Hospital Rotterdam, Rotterdam, Netherlands

Journal: Neurosurgery, 1997, 41 (2) 442-452

Language: English

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Display 4/3/26 (Item 2 from file: 144)
DIALOG(R)File 144:Pascal
(c) 1998 INIST/CNRS. All rts. reserv.

12913073 PASCAL No.: 97-0181263

Adenovirus-mediated herpes simplex virus thymidine kinase gene and ganciclovir therapy leads to systemic activity against spontaneous and induced metastasis in an orthotopic mouse model of prostate cancer

HALL S J; MUTCHNIK S E; CHEN S H; WOO S L C; THOMPSON T C

Matsunaga-Conte Prostate Cancer Research Center and Scott Department of Urology, Baylor College of Medicine, Houston, TX 77030, United States; Department of Cell Biology, Baylor College of Medicine, Houston, TX 77030, United States; Howard Hughes Medical Institute, Baylor College of Medicine, Houston, TX 77030, United States; Urology Research Laboratory, VA Medical Center, Baylor College of Medicine, Houston, TX 77030, United States; Department of Radiotherapy, Baylor College of Medicine, Houston, TX 77030, United States

Journal: International journal of cancer, 1997, 70 (2) 183-187

Language: English

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Display 4/3/27 (Item 3 from file: 144)
DIALOG(R)File 144:Pascal
(c) 1998 INIST/CNRS. All rts. reserv.

11545878 PASCAL No.: 94-0428054

Use of recombinant **adenovirus** to transfer the Herpes simplex virus thymidine kinase (HSVtk) gene to thoracic neoplasms : an effective in vitro drug sensitization system

ROY SMYTHE W; HWANG H C; AMIN K M; ECK S L; DAVIDSON B L; WILSON J M; KAISER L R; ALBELDA S M

Univ. Pennsylvania thoracic oncology res. lab., dep. surgery, thoracic surgery sect., Philadelphia PA, USA

Journal: Cancer research : (Baltimore), 1994, 54 (8) 2055-2059

Language: English

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DIALOG(R)File 144:Pascal
(c) 1998 INIST/CNRS. All rts. reserv.

11545878 PASCAL No.: 94-0428054

Use of recombinant **adenovirus** to transfer the Herpes simplex virus
thymidine kinase (HSVtk) gene to thoracic neoplasms : an effective in vitro
drug sensitization system

ROY SMYTHE W; HWANG H C; AMIN K M; ECK S L; DAVIDSON B L; WILSON J M;
KAISER L R; ALBELDA S M

Univ. Pennsylvania thoracic oncology res. lab., dep. surgery, thoracic
surgery sect., Philadelphia PA, USA

Journal: Cancer research : (Baltimore), 1994, 54 (8) 2055-2059

Language: English

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RC 261. A1C2